Specification Amendments

Please replace the paragraph beginning on page 4, line 21, with the amended paragraph, as follows:

Conventional single-ended devices have had to be quite large to work effectively; and even so, were less efficient than standard electrostatic and electro-dynamic cone-type loudspeaker designs mentioned above. Small, or even average-sized single-ended planar-magnetic devices (compared to standard sizes of conventional speakers) have not effectively participated in the loudspeaker market in the time since introduction of planar-magnetic speakers. Very large devices, generally greater than 300 square inches, have been available to the consumers in the speaker market; and these exhibit limited competitiveness. That is to say, they are on par with standard speakers in terms of acceptance, ~~acceptance,~~ suitability for certain applications, cost, and performance. But again, prior single-ended planar-magnetic devices with such large diaphragm areas require correspondingly relatively large, expensive structures; and, such relatively large speakers can be cumbersome to place in some domestic environments. They have relatively low efficiencies as well, compared with conventional electrostatic and dynamic transducers, requiring more powerful, and hence more expensive, amplifiers to provide adequate signal strength to drive them.

Please replace the paragraph beginning on page 5, line 4, with the amended paragraph, as follows:

At first impression, a single-ended device might appear to be simpler and cheaper to build than a double-ended design. The same amount of magnet material can be used by doubling the thickness of the magnets to correspond to the combined thickness of a double-ended array of magnets. Because magnets which are twice as thick are cheaper than twice as many magnets half as thick in a double-ended device, there should be significant savings in a single-ended configuration. Furthermore, the structural complexity is significantly less with regard to single-ended designs, further adding ~~added~~ to expected cost savings.

Please replace the paragraph beginning on page 6, line 1, with the amended paragraph, as follows:

As mentioned, prior planar-magnetic speakers, particularly prior art single-ended devices, have utilized rows of magnets placed closely, side by side. The magnets are oriented with alternating polarities facing the film diaphragm, which includes conductive wires or strips 18 substantially centered between the magnets. Such prior devices further illustrate that the magnet energy to be captured by the conductive strips is a shared magnetic field with lines of force arching ~~arcing~~ between adjacent magnets. In such prior devices, the magnetic force is assumed to be at a maximum at a point halfway between two adjacent magnets of opposite polarity orientation and, correspondingly, centered placement of the conductive strips in the field at that location is typical. To achieve this maximized flux density at the position centered between the magnets, it has been shown that (i) not only does the total size of the system need to be increased; but, (ii) the magnet placement must be much closer together and more plentiful in a single-ended device than in a push-pull planar-magnetic transducer.

Please replace the paragraph beginning on page 8, line 31, with the amended paragraph, as follows:

The invention provides a planar-magnetic transducer comprising at least one thin-film vibratable diaphragm with a first surface side and a second surface side, including an active region, said active region including a coil having at least one conductive area configured for interacting with a magnetic structure for converting an electrical input signal to a corresponding acoustic output; and, a primary magnetic structure including at least one elongated high energy magnet having an energy product of greater than 25 mega Gauss Oersteds. The magnet can be greater than 34 mGO and can comprise neodymium. The transducer further comprises a mounting support structure coupled to the primary magnetic structure and the diaphragm, to capture the diaphragm, and hold it in a predetermined state of tension. The diaphragm is also spaced at a distance from the primary magnetic structure adjacent one of the surface sides of the diaphragm. The conductive surface area includes one or more elongate conductive paths running substantially parallel with said magnets. The mounting support structure, and the multiple magnets of the magnetic structure, and the diaphragm, have coordinated compositions and are

cooperatively figured and positioned in predetermined spatial relationships, wherein the configurations of the magnetic relationships provide performance and/or cost/performance ratios that are improved over the prior art single ended or double ended planar-magnetic devices.

Please replace the paragraph beginning on page 15, line 30, with the amended paragraph, as follows:

This concept of central augmentation of magnetic field energy available for coupling by the coil conductors 27 of the conductive areas 26 of the diaphragm 21 is particularly effective when combined with the concept of using higher-energy magnets, such as those having an energy of over 25 mGO, and even about 34 mGO or more. The inventors have found that going in a contrary direction from bringing the magnets closer together to increase the shared field strength between magnets, as is done in prior devices, by spreading the magnets apart, increasing their energy, and maximizing use of local loop energies, increases in various efficiencies allows a more effective device to be constructed. Further details of this design philosophy, its implementation, and advantages obtained, can be found in co-pending U.S. Patent Application Serial No. 10/055,821 , Attorney Docket No. T9573, which is hereby incorporated by reference for the supporting teachings of that disclosure. While dealing primarily with single-ended designs, the aforementioned design direction has applicability beyond single-ended devices, as will be appreciated with reference to this disclosure.

Please replace the paragraph beginning on page 22, line 19, with the amended paragraph, as follows:

Moreover, while the concept has been discussed in connection with cross-sectional figures, in terms of a single transverse plane, in another embodiment the magnet strength can be varied in a transverse plane. That is to say, moving along the magnet rows in and out of the planes of the figures discussed above, the magnet energy, magnet face-to-diaphragm gap, inter-magnet spacing, etc. can be varied as well, so that looking at a speaker from the front the magnetic field set up by the magnetic structure varies with distance from the center of the diaphragm both in a vertical and a horizontal direction.

Please replace the paragraph beginning on page 26, line 33, with the amended paragraph, as follows:

With reference to FIGs. 32 and 33, in other embodiments a virtual pole 46 can be made by forming the support structure 30a or 30b in a folded configuration, for example by a roll-forming process. The virtual pole thus formed can have a substantially rectilinear configuration, as in FIG. 32, mimicking the shape of a rectilinear section magnet. Further, the virtual pole can be perforated to allow it to be more easily formed, and to allow some acoustic transparency. Holes 15 in the supporting structure can also be provided. With reference to FIG. 33, [it] the folded structure virtual pole can mimic a shaped magnet, to provide a flared inter-magnet space 16. Again, holes are provided in the support structure as described above to allow passage of sound (and air) with less restriction and the attendant audio artifacts of restriction. In one embodiment the folded virtual pole can be filled with an epoxy, which can contain a ferrous material, to improve the magnetic circuit performance and also stiffen the support structure. In another embodiment, shown in FIG. 34, The virtual poles 45,46 are formed of perforated support structure 30a,b plate, and the magnets 35, 36 spaced closely between. The magnets are all of the same polarity in each of the primary magnetic structure and the secondary structure, so that the virtual poles are of opposite polarity to the magnets. This configuration can be combined with the other features of variation of magnet energy and gap 31 width, and can be made mirror image or offset (as shown in the figure). The latter has the advantage of providing a magnet which has a higher energy adjacent a virtual pole having a lower energy. With reference to FIG. 35, in another embodiment similar to FIG. 32 a magnet 35 or 36 is placed in an otherwise empty virtual pole of folded configuration and enhances the energy of the pole. As will be appreciated, the configuration of FIG. 35 can also be used to create each magnet row, and can be reversed. This is further illustrated in FIG. 36, where the folded support structure is used to hold the magnets and to cooperate with the shape of the magnets to provide flared inter-pole openings 16 adjacent the holes 15 in the structure in one embodiment.

Please replace the paragraph beginning on page 27, line 28, with the amended paragraph, as follows:

With reference to FIG. 36, in another embodiment the magnets 35a,b are oriented 90° from those of the other embodiments, and the conductor areas 26 comprising conductor strips 27 of the coil are located adjacent and overtop the magnets.

Please replace the paragraph beginning on page 28, line 12, with the amended paragraph, as follows:

It is evident that those skilled in the art may now make numerous other modifications ~~modification~~ of and departures from the specific apparatus and techniques herein disclosed without departing from the inventive concepts. Consequently, the invention is to be construed as embracing each and every novel feature and novel combination of features present in or possessed by the apparatus and techniques herein disclosed and not limited to the examples given herein, as it is to be understood that the above-described arrangements are only illustrative of the application of the principles of the present invention. Numerous modifications and alternative arrangements may be devised by those skilled in the art without departing from the spirit and scope of the present invention and the appended claims are intended to cover such modifications and arrangements. Thus, while the present invention has been shown in the drawings and fully described above with particularity and detail in connection with what is presently deemed to be the most practical and preferred embodiment(s) of the invention, no limitation of the scope of the invention is intended.

Applicant thanks the Examiner in advance for implementing these changes, which are corrective of typographical errors and errors of form in the specification of the application.